

Remarks

Claim 1 is amended in order to more clearly define the claimed invention. The Applicants respectfully submit that no new matter is added. It is believed that this amendment is fully responsive to the Office Action dated July 25, 2005.

Feature of amended Claim 1

In the amended Claim 1, a tight-space cleaning performance can be improved while maintaining smooth-surface cleaning performance by way of increasing a resiliency of filaments in both methods of tooth-brushing along a direction of a handle length (horizontal brushing, scrubbing method, pass method etc.) and tooth-brushing along a direction of a handle width (vertical brushing or rolling method). That is, no matter which brushing methods is used, excellent plaque removal efficiency can be obtained and furthermore a tight-space cleaning performance can be also obtained by way of increasing a resiliency of filaments, e.g. in a portion wherein caries and periodontal disease often occurred.

Tooth-brushing along a direction of a handle length

Tufting holes are formed in an almost elliptic or rectangular shape along a direction of a handle length so that there are a number of filaments constituting the tuft in a direction of a handle length. Accordingly the tuft stiffness becomes stronger in a direction of a handle length. Consequently, when tooth-brushing in a direction of a handle length, a cleaning performance can be improved by increasing the resiliency of the filaments.

Simultaneously the elliptic or rectangular tufting holes are constituted to be inclined in a right angle direction of a handle length toward the tufted surface so that the tufts planted thereon are inclined to each other. The end portions of converging blocks of a pair of 2 tufts facing and

supporting one another are converged in a V-shape. Accordingly, when tooth-brushing along a direction of a handle length, the tight-space cleaning performance can be improved.

Tooth-brushing along a direction of a handle width

The tufting holes are formed in an elliptic or rectangular shape along a direction of a handle length so that there are not large number of filaments constituting the tufts in a direction of a handle width. In general, the stiffness of the tufts becomes weaker in a direction of a handle width. But, in the invention of amended Claim 1, the elliptic or rectangular shape is constituted to be inclined in a right angle direction of a handle length toward the tufted surface so that the tufts planted thereon are inclined to each other. As a result, the end portions of the converging blocks formed by the tufts supporting each other are formed so as to have a large resiliency of filaments. Consequently, when tooth-brushing along a direction of a handle width, the cleaning performance can be maintained at a high level. In addition, different from Kaufman, in the present invention, the cross section of one tuft is elliptic or rectangular so that filaments can be faced on most of each tooth when tooth-brushing along a direction of a handle width, and consequently cleaning performance becomes good.

On the other hand, the end portion of each tuft planted in tufting holes having an elliptic or rectangular shape is processed in a V-shape in a direction of a handle width, and the slope surface is constituted so as to cross at a top in a direction of the above-mentioned planted tufts inclining to each other. Accordingly, when tooth-brushing along a direction of a handle width, the tight-space cleaning performance can be improved.

As mentioned above, in the amended present claim 1, a tight-space cleaning performance can be improved while maintaining smooth-surface cleaning performance by way of increasing a resiliency of filaments in both methods of tooth-brushing along a direction of a handle length

(horizontal brushing, scrubbing method, pass method, etc.) and tooth-brushing along a direction of a handle width (vertical brushing or rolling method).

With regard to the above-mentioned effect, it's clear from the Declaration by Atsushi Yamamoto (submitted on January 11, 2005).

Claims 1, 8, 13 and 15 are rejected under 35 USC §103(a) as being unpatentable over Kaufman et al. (U.S. Patent No. 4,570,282) in view of Monz (EP 0716573) in view of Hassell et al. (U.S. Patent No. 6,202,241) and further in view of Bredall et al. (U.S. Patent No. 5,396,678).

Claims 5 and 14 are rejected under 35 U.S.C §103(a) as being unpatentable over Kaufman et al., Monz, Hassell et al., and Bredall et al., as applied to Claim 1 above and further in view of Curtis et al., (U.S. Patent No. 5,446,940).

Claims 9 and 12 are rejected under 35 USC §103(a) as being unpatentable over Kaufman, Monz, Hassell and Bredall as applied to Claim 1 above and further in view of Solanki et al. (U.S. Patent No. 6,314,605).

Reconsideration and removal of the above rejections is respectfully requested.

Comparison of amended Claim 1 and cited references

It is respectfully submitted that Kaufman teaches a toothbrush wherein the tufting holes are formed so as to be inclined in a right angle direction of a handle length. The inclination of the tufting holes itself is well known. However, according to Kaufman, when tooth-brushing in a direction of a handle length, enough resiliency can not be obtained so that the cleaning performance better than a common tooth-brushing can not be obtained.

The present invention has the same structure of Kaufman, in that the tufting holes are

inclined at a right angle to the direction of a handle length. But the shape is formed to have an elliptic or rectangular shape along a direction of a handle length. As a result, when tooth-brushing in a direction of a handle length, the resiliency of filaments can be improved. In addition, the tight-space cleaning performance damaged by the above-mentioned merit can be recovered by the way that the end portions of the tufts are processed so as to be a V-shape in a direction of the handle width. Accordingly the structure and action/effect of the present invention is completely different from that of Kaufman.

With regard to the difference, the Examiner states that Monz discloses a toothbrush comprised of elliptic tufts extending in a direction of a handle length and Hassell discloses a toothbrush wherein the end portions are processed in a V-shape and the slope surface comprises rows of tufts (39) crossing at a top in a direction of tufts supporting each other.

Accordingly we will explain the difference between the present invention and the combination of Monz and Hassell. The toothbrush of Monz discloses the elliptic tufts extending in a direction of a handle length. But Monz never discloses or suggests that the elliptic tufts are provided in a direction of a handle width as disclosed in the present invention. The plaque removal efficiency and cleaning performance of the toothbrush means the reachability of filaments and removability of plaque or food waste at a reached portion by the resiliency of the filaments. Enough cleaning performance can be obtained only by the above-mentioned properties, reachability and removability.

But, if the elliptic tufts of Monz is combined with the tufts of Kaufman to be inclined to each other, a large amount of the end portion of the tufts are gathered into one portion. As a result, the reachability is very much reduced and the toothbrush can not reach into a tight portion wherein caries and periodontal disease often occur. In addition, the end portion is easily flexed and a bad handling

property can not be avoided. Accordingly it's not easy for a person having an ordinary skill in the art to have an idea to combine the above-mentioned two references. On the other hand, Kaufman discloses inclining tufts, but the tufts are circular shape. In the conventional type toothbrush wherein tufts are inclined to each other, the cross section of all the tufts is circular so that the resiliency of filaments are not the same as that of Kaufman. And, for the purpose of supplementing the weak resiliency, it is constituted so that tufts are inclined to each other. On the contrary, in the case of the elliptic tufts like Monz, originally enough resiliency can be expected in a long direction. Accordingly, from a view point of a common technical knowledge, there can not be found any need to increase the resiliency by supporting each other.

On the contrary, in the present amended Claim 1, it is constituted such that the elliptic tufts like Monz is constituted so as to be inclined to each other in a direction of a handle width, consequently the resiliency in a direction of not only a handle length but also a handle width can be improved. Accordingly it's impossible for a person having an ordinary skill in the art to achieve the present invention by combining Kaufman and Monz.

In addition, in the present amended Claim 1, the end portions of the tufts are processed into a V-shape in a direction of a handle width in order to resolve the above-mentioned problem. Accordingly the tight-space cleaning performance and handling property can also be improved when tooth brushing in a direction of a handle width.

Hassell discloses to process the end portion of the tufts into a V-shape. But the tufts of Hassell are not inclined to each other and the cross section of the tufts is circular. Accordingly Hassell only discloses to improve the tight-space cleaning performance by processing the end portion into a V-shape when tooth brushing in a direction of a handle width. In this case, the reachability

into a narrow portion can be improved. But the amount of the tufts at the end portion becomes smaller than that of the conventional type tufts by cutting the ordinary tufts inclinedly. As a result, the removability as another important point is decreased a large amount. Accordingly, even if combining Kaufman, Monz and Hassell, it's impossible to obtain an idea of the present invention.

As mentioned above, it's impossible for a person having an ordinary skill in the art to achieve the present invention by combining Kaufman, Monz, Hassell and Bredall. Accordingly it is respectfully submitted that the amended Claim 1 and the dependent Claims 5, 8, 9, 12-15 and 21 are patentably distinct from and non-obvious in view of the cited references for the reasons discussed above. Removal of the present claim rejections is respectfully requested.

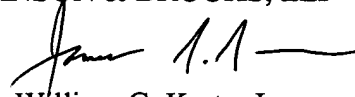
It is respectfully submitted that Claims 1, 5, 8, 9, 12-15 and 21 are now in condition for allowance. Allowance of Claims 1, 5, 8, 9, 12-15 and 21 is respectfully requested.

If there are any issues of a minor nature remaining, the Examiner is urged to contact Applicants' attorney, the undersigned, at Area Code (202) 659-2930.

In the event that any fees are due in connection with this paper, please charge our Deposit
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Respectfully submitted,

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